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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/543,050	12/12/2005	Kenichi Ishibashi	S1459.70081US00	2592

23628 7590 02/27/2009

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EXAMINER	
NOVACEK, CHRISTY L	
ART UNIT	PAPER NUMBER
2822	
MAIL DATE	DELIVERY MODE
02/27/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/543,050	ISHIBASHI ET AL.	
	Examiner	Art Unit	
	CHRISTY L. NOVACEK	2822	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 July 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *07/21/2005, 05/05/2006, 07/25/2006, 02/04/2008, 03/11/2008*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This office action is in response to the communication filed July 21, 2005.

Information Disclosure Statement

The information disclosure statement filed July 25, 2006 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each publication listed that is not in the English language. Therefore, the references of Ngamsinlapasathian, Adachi and Murata have not been considered.

On the information disclosure statement filed February 4, 2008, the reference of "US 2002/289269" has not been considered because no US published patent application having that number exists.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. (US 20020015881), cited in IDS in view of Yoshikawa (US 6,586,670), cited in IDS.

Regarding claims 1, 6, 10, 11, 13 and 14, Nakamura discloses making a photoelectric conversion device, coating a paste containing a mixture of semiconductor fine grain particles

(21) and a polymer compound binder onto a transparent conductive substrate (50), sintering to form a semiconductor layer (20) made of the semiconductor fine grain particles, and, after the semiconductor layer is formed, irradiating ultraviolet rays onto the semiconductor layer (Fig. 1, ¶ 0023-0024, 0044-0062). Nakamura discloses that heat treatment causes "unnecessary matter" to be removed from the semiconductor layer, but Nakamura does not specifically disclose that the removing organic material (¶ 0062). Like Nakamura, Yoshikawa discloses making a photoelectric conversion device by coating a paste containing semiconductor fine particles and a binder on a substrate (Abstract). Yoshikawa discloses that heat treatment combined with applying an UV ray works to remove unnecessary organic compounds (col. 20, ln. 31-35). At the time of the invention, it would have been obvious to one of ordinary skill in the art to use the heat/UV treatment process of Nakamura to rid the semiconductor layer of organic substances because Nakamura states that the heat treatment removes unnecessary matter and Yoshikawa states that heat/UV treatment removes unnecessary organic compounds.

Regarding claim 2, Nakamura discloses one or more kinds of semiconductor fine grain particles exhibiting photocatalyst activity may be used as the semiconductor fine grain particles (¶ 0039).

Regarding claim 3, Nakamura discloses that the semiconductor fine grain particles can be made of titanium oxide, zinc oxide or strontium titanate (¶ 0035-0036).

Regarding claim 4, Nakamura discloses that the polymer compound improves the viscosity of the paste (¶ 0045).

Regarding claim 5, Nakamura discloses that the polymer compound improving viscosity can by polyethylene glycol (¶ 0045).

Regarding claims 7-9, 12 and 15, at the time of the invention, it would have been obvious to one of ordinary skill in the art to use routine experimentation to adjust the heat/UV treatment of Nakamura in order to control the evaporation of the organic substance therein because Nakamura discloses removing unnecessary substances from the film and Yoshikawa discloses using heat/UV treatment to remove unnecessary organic compounds.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christy L. Novacek whose telephone number is (571) 272-1839. The examiner can normally be reached on Monday-Friday 12:00pm - 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zandra Smith can be reached on (571) 272-2429. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CLN
February 23, 2009

/N. Drew Richards/
Supervisory Patent Examiner, Art Unit 2895